Title: LOW LOSS INTERCONNECT STRUCTURE FOR USE IN MICROELECTRONIC CIRCUITS

### **REMARKS**

Applicant has reviewed and considered the Office Action mailed on January 3, 2003, and the references cited therewith.

No claims are amended, no claims are canceled, and claims 26-45 are added; as a result, claims 13-18 and 26-45 are now pending in this application. The amendments to the claims are fully supported by the specification as originally filed. No new matter has been added. Applicant respectfully requests reconsideration of the above-identified application in view of the amendments above and the remarks that follow.

Claims 26 and 28 find support, for example, in the specification on page 4, lines 3-4.

Claims 27, 29, 30, 32, 33, and 36-45 find support, for example, in the specification on page 7, lines 26 – page 8, line 25.

Claim 34 finds support, for example, in the specification on page 4, line 19 – page 14. Claims 31 and 35 find support, for example, in the specification on page 6, lines 2-14.

# First \$103 Rejection of the Claims

Claims 13-16 were rejected under 35 USC § 103(a) as being unpatentable over Okamura (U.S. Patent No. 5,521,541) in view of Chi (U.S. Patent No. 5,387,885) and Sano et al. (JP 2-158165). Applicant traverses these grounds for rejection.

Applicant respectfully submits that the Office Action did not make out a proper *prima* facie case of obviousness because there is no suggestion to combine the cited references.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP § 2143.

The cited references and the Office Action do not provide a reasonable expectation of success for the combination of Okamura with Chi. Applicant believes that a reasonable expectation for success is provided only in Applicant's disclosure and not in the cited references. Applicant's instant application recites, for example, on page 7, lines 15- 19,

"[a]s described previously, in the past, on-die interconnects were typically relatively lossy structures. Thus, these structures were not optimal for use in salphasic clocking networks. The interconnect structure of the present invention, however, is capable of achieving losses that are low enough to make on-die salphasic clocking feasible."

#### AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

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Applicant can not find a teaching or suggestion in Okamura for a signal wiring pattern having sufficiently low losses to make on-die salphasic clocking feasible. Further, Applicant can also not find in Chi a teaching or suggestion for an on-die low-loss signal distribution network having sufficiently low losses to make on-die salphasic clocking feasible. Chi appears to mainly deal with lossless or slightly lossy medium at the system level, for example at the printed circuit board level and higher in system hierarchy. Further, Chi recites at column 10, lines 6-10,

"[t]he design methodology of the present invention is, therefore, to provide a distribution system which exhibits salphasic behavior. According to this methodology, the following three conditions must be met.

First, the propagating medium (for example, the branches of the tree network shown in FIG. 6) must be substantially lossless and bounded."

Since Chi has a condition to be met for a salphasic distribution and Okamura does not appear to provide a teaching or suggestion regarding having a wiring pattern that meets such a condition, there is not a reasonable expectation of success in the combination of Okamura and Chi. Further, Sano does not appear to provide a teaching or suggestion that cures the deficiencies in combining Okamura and Chi.

Therefore, for the abovementioned reasons, claim 13 is patentable over Okamura, Chi, and Sano.

Claims 14-16 are dependent on claim 13 and are patentable for the reasons stated above in addition to the elements of these claims.

Applicant requests withdrawal of these rejections of claims 13-16, and reconsideration and allowance of these claims.

# Second \$103 Rejection of the Claims

Claims 17-18 were rejected under 35 USC § 103(a) as being unpatentable over Okamura (U.S. Patent No. 5,521,541) in view of Chi (U.S. Patent No. 5,387,885) and Sano et al. (JP 2-158165) as applied to claim 13 above, and further in view of Restle et al. (IEEE Symposium on VLSI Circuits Digest of Technical Papers, 1998). Applicant traverses these grounds for rejection.

Adding Restle et al. to the combination of patents cited in the above rejection does not cure the deficiencies of the rejection based on Okamura, Chi, and Sano, as discussed above.

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

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Claims 17-18 are dependent on claim 13 and are patentable for the reasons stated above in addition to the elements of these claims.

Applicant requests withdrawal of these rejections of claims 17-18, and reconsideration and allowance of these claims.

### New Claims

Claims 26-45 are added. These claims are directed to subject matter in line with claims 13-18. No new matter has been added. Applicant believes these claims are in condition for allowance.

Applicant respectively requests consideration and allowance of claims 26-45.

## Assertion of Pertinence

Applicant has not responded to the assertion of pertinence stated for the patents cited but not relied upon by the Office Action since these patents are not relied upon as part of the rejections in this Office Action. Applicant is expressly not admitting to any assertion of their pertinence and reserves the right to address the assertion should it form a part of some future rejection.

#### AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

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## Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612-371-2157) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date 29 1-PRIL 2003

David R. Coch

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 24 day of April, 2003.

Anne M. Richards

Name

Signature